

Date: Monday, 12/01/2009 2:38:17 PM
 User: Julie Dawson

Process Sheet

Customer : CU-DAR001 Dart Helicopters Services
 Job Number : 44687
 Estimate Number : 13173
 P.O. Number :
 This Issue : 12/01/2009 S.O. No. :
 Prsht Rev. : NC
 First Issue : / / Type : MACHINED PARTS
 Previous Run : 38684
 Written By :
 Checked & Approved By : JD 09.01.13
 Comment : Est Rev:A New Issue 08-02-11 JLM Verified By:EC
 Est Rev:B Material Change 09-01-07 JLM Verified By:EC

Drawing Name : SLEEVE
 Part Number : D36891
 Drawing Number : D3689 UREV B
 Project Number : N/A
 Drawing Revision : B
 Material :
 Due Date : 23/02/2009 Qty: 6 Um: Each

Additional Product

Job Number:



Seq. #: Machine Or Operation: Description:

1.0 M174PHH900R1375 17-4PH SS ROUND BAR 1.375 COND.900



Comment: Qty.: 0.4200 f(s)/Unit Total: 2.5200 f(s)
 17-4PH SS ROUND BAR 1.375 ****CONDITION H-900****

Batch: M170540

2.0 DOOSAN LATHE DOOSAN LATHE



Comment: Doosan Lathe

1- Turn as per Folio FA722 Rev: N/A & Dwg D3689 Rev: B

2-Deburr per dwg D3689

SD 09/01/20

3.0 QC2 INSPECT PARTS AS THEY COME OFF MACHINE



Comment: INSPECT PARTS AS THEY COME OFF MACHINE

SD 09/01/20

4.0 MILLING CONV. CONVENTIONAL MILLING MACHINE



Comment: CONVENTIONAL MILLING MACHINE
 Drill 1/16" Holes and C'sink .188" holes as per dwg D3689

MA 09/01/20

5.0 QC2 INSPECT PARTS AS THEY COME OFF MACHINE



Comment: INSPECT PARTS AS THEY COME OFF MACHINE

MA 09/01/20

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: D3689-1 PAR #: _____ Fault Category: _____ NCR: Yes ☒ No ☐ DQA: 18 Date: 09.01.29

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR: <u>44687</u>		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			
09.01.26	1	BLANKS LIKELY CUT WITH CHOP SAW, ENDS PARTS MAY BE HEAT AFFECTED AFFECTED	<u>P</u> 09.01.26 per QSI/ML	- PARTS ACCEPTABLE, PER DS EMAIL - UPDATE IPP TO SPECIFY BAN SAW FOR CUTTING PARTS	<u>ML</u> 09/01/28	<u>S</u> 09.01.28	<u>P</u> 09.01.26 per QSI/ML	<u>S</u> 09.01.28
			<u>ML</u> 09.02.02	Change made on Estimate 2.0	<u>ML</u> 09.02.02	<u>ML</u> 09.02.02	<u>ML</u> 09.02.02	<u>ML</u> 09.02.02

NOTE: Date & initial all entries

Date: Monday, 12/01/2009 2:38:17 PM
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Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: SLEEVE

Job Number: 44687

Part Number: D36891

Job Number:



Seq. #:

Machine Or Operation:

Description :

6.0

QC8

SECOND CHECK



Comment: SECOND CHECK

mf 09/01/23

(6)

7.0

PG

PURCHASING



Comment: PURCHASING

Issue P/O: *8084*

LPI Per ASTM 1417 LEVEL 2

Certificate of conformaty is required

JUD 09.01.20 (6)

8.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Receive & Inspect For Transit Damage

Ensure certificate of conformity is attached

12/01/28 (6)

9.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

S 09/01/28 (x6)

10.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Identify and Stock

Location: _____

12/01/26 (6)

11.0

QC21

FINAL INSPECTION/W/O RELEASE



Comment: FINAL INSPECTION/W/O RELEASE

09/01/29 (6)

Job Completion



mf 09-01-28

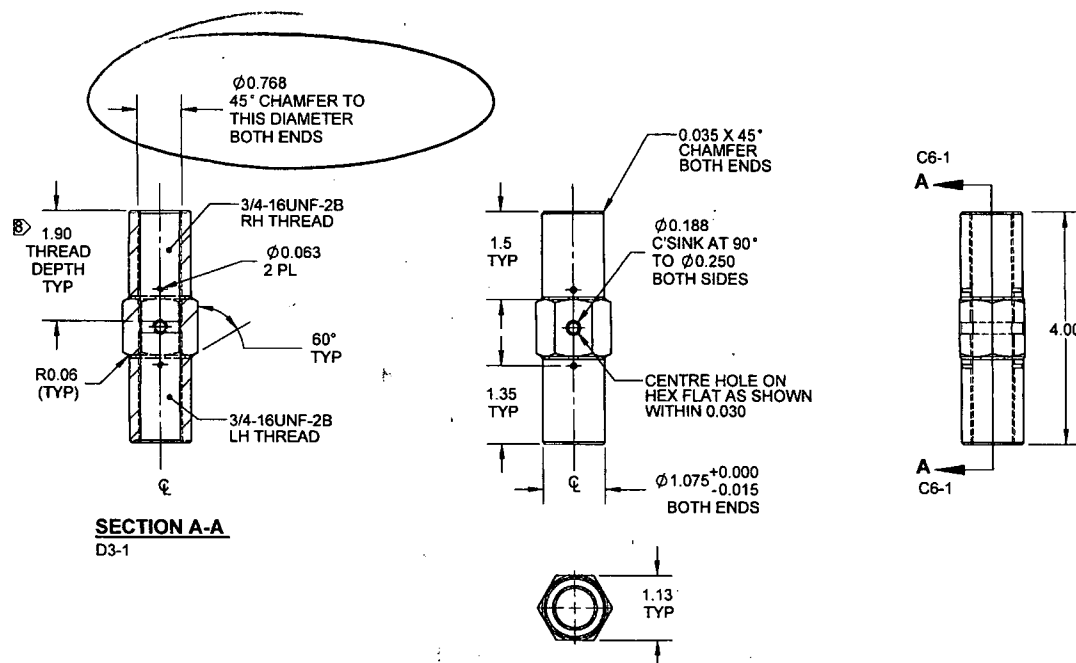
W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries



SECTION A-A
D3-1

D3689-1 SLEEVE

RELEASED
08/12/15

- NOTES:**
- 1) MATERIAL: 17-4PH STAINLESS STEEL ROUND BAR PER AMS 5643 H-900 CONDITION
 - 2) FINISH: NONE
 - 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
 - 4) UNITS: INCHES UNLESS OTHERWISE NOTED
 - 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
 - 6) IDENTIFICATION: NONE
 - 7) WEIGHT: 0.67 lb
 - 8) DIMENSION SHOWN IS MINIMUM DEPTH OF FULL THREAD
 - 9) LPI PER ASTM 1417 LEVEL 2

B	CHANGE TO 17-4PH H-900 (ZN A8-1); REFORMATTED TO CURRENT DWG STANDARDS	RF	08.11.24
A	NEW ISSUE	RF	08.05.22
REV.		BY	DATE
DESIGN	RF	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	RF		
CHECKED	97	DRAWING NO.	REV. B
MFG. APPR.	27	D3689	SHEET 1 OF 1
APPROVED	11	TITLE	SCALE
DE APPR.	11	SLEEVE	NTS
DATE	08.11.24	COPYRIGHT © 2008 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	

NO. 174087
WITH CUT NOTICE
SUBJECT: DART AEROSPACE
CONTROLLED COPY
FOR UPDATING
END OF WORKING
SHEETS COPY

Chris Provencal

From: David Shepherd [dshepherd@dartaero.com]
Sent: January 26, 2009 10:52 AM
To: 'Chris Provencal'
Subject: RE: NCR D3689-1

Chris,

I think the 5 x D3689-1 that have been machined are acceptable.

David

From: Chris Provencal [mailto:cprovencal@dartaero.com]
Sent: Friday, January 23, 2009 11:51 AM
To: 'David Shepherd'
Cc: 'Mike Petsche'; Eric Charbonneau; David Duval; 'Jean-Luc Menard'
Subject: NCR D3689-1

David,

For the D3688-X studs (engine mount). They cut two blanks on the chop saw by mistake (should be band saw), which caused way to much heat and discolored the metal about 3/8" in depth from the ends. I'm thinking that because the metal is hardened, that this could have weakened the mat'l, therefore it's unacceptable. I've scrapped them and requisitioned them for use in the deflection test rig, so that's taken care of.

However, Simon pointed out that several D3689-1 Sleeves (qty 5) were made using mat'l that was discolored in a similar way. I've included a photo of the stock mat'l used (also shows scrapped 1" OD mat'l on right). The final piece (on left) shows no evidence of discoloration after machining. My assessment would be that if the material was weakened, then it'd only be the very end of the thread. There is likely sufficient remaining thread and the end of the sleeve is not likely to be the place for a failure in bending. However, this is a flight critical part and we have sufficient reason to believe the mat'l strength has been affected at the ends of the sleeve. I've been going on the basis that no deviation sign-off is permissible on our end for these parts. What say you?

Simon said he'll discuss with Eric/David to make sure the w/o specify to cut blanks on the band saw. I'll see about creating a PAR.

Sincerely,
Christopher Provencal
DART Aerospace Ltd.

cprovencal@dartaero.com
Tel: (613) 632 5200
Fax: (613) 632 9311

No virus found in this outgoing message.

Checked by AVG.

Version: 7.5.552 / Virus Database: 270.10.12/1911 - Release Date: 1/23/2009 7:28 AM

No virus found in this outgoing message.

Checked by AVG.

Version: 7.5.552 / Virus Database: 270.10.13/1915 - Release Date: 1/25/2009 6:13 PM

2009-01-26



LIQUID PENETRANT TEST REPORT

P- 14931

PAGE 1 OF 1

CLIENT DART AEROSPACE DATE JUN. 28-2009 TIME AM ☒ PM ☐
ATTENTION LINDA ACUREN JOB NO. 188-09-001282
ADDRESS 1270 ABELDEEN ST POWO NO. 8084
HAWKES BURY, ONT. K6A-1K7 WORK LOCATION MAIN SHOP - HAWKESBURY
ACCEPTANCE STD. ASTM 1417 REV./DATE 2007
PROJECT F.P.I. ON MACHINED PARTS AND CROSS TUBES.
ITEM(S) EXAMINED 42 MACHINED PIECES.
3 CROSS TUBES 100% EXTERNAL AND ONE CROSS TUBE REEXAMINE

JOB DESCRIPTION PROCEDURE NO. LT-XXXX REV./DATE TECHNIQUE NO. LT-XXXX-XXX REV./DATE
PART NO. MATERIAL MACHINED ALUM THICKNESS
SCOPE WET FLUORESCENT LIQUID PENETRANT INSPECTION
CARRIED OUT ON 100% EXTERNAL.

TEST DETAILS
METHOD ☒ FLUORESCENT ☐ VISIBLE ☒ WATER WASH ☐ SOLVENT REMOVABLE ☐ POST EMULSIFIED
FAMILY BRAND MAGNAFLUX BLACK LIGHT S/N 8171 ☐ OUTPUT > 1000 μ W/cm² ☐ AMBIENT < 2 fc
PENETRANT 2L 07 MINIMUM DWELL TIME 25 MIN. LIGHTING EQUIP. ☐ FLASHLIGHT ☐ TROUBLELIGHT ☐ OUTPUT > 100 fc @ SURFACE
PENETRANT REMOVER H2O MINIMUM DRY TIME >10 MIN. OTHER
DEVELOPER SK052 MINIMUM DWELL TIME 10 MIN. LIGHT METER S/N CAL DUE DATE FEB -09
DEVELOPER TYPE ☒ NON AQUEOUS ☐ AQUEOUS ☐ DRY

TEST SURFACE
SURFACE CONDITION ☐ AS GROUND ☐ AS WELDED ☐ MACHINED ☐ SHOT BLASTED ☒ CLEAN BARE METAL
SURFACE TEMPERATURE ☐ < -4°C/ 20°F ☐ -4°C/ 20°F TO 10°C/50°F ☐ 10°C/50°F TO 52°C/125°F ☐ > 52°C/125°F

RESULTS- (<input type="checkbox"/> METRIC <input type="checkbox"/> IMPERIAL)		ACCEPT	REJECT
ITEM	COMMENTS		
1	JB# 44214	✓	
1	45066	✓	
1	44215	✓	
1	44944	✓	
2	45299	✓	
10	44824	✓	
6	44687	✓	
2	45297	✓	
10	44823	✓	
6	44686	✓	
6	44685	✓	

S
0261/28
ALL ITEMS FOUND
ACCEPTABLE FOR JB# NOTED

Scope of Services
The agreement of Acuren Group Inc. to perform services extends only to those services provided for in writing. Under no circumstances shall such services extend beyond the performance of the requested services. It is expressly understood that all descriptions, comments and expressions of opinion reflect the opinions or observations of Acuren Group Inc. based on information and assumptions supplied by the owner/operator and are not intended nor can they be construed as representations or warranties. Acuren Group Inc. is not assuming any responsibilities of the owner/operator and the owner/operator retains complete responsibility for the engineering, manufacture, repair and use decisions as a result of the data or other information provided by Acuren Group Inc. In no event shall Acuren Group Inc.'s liability in respect of the services referred to herein exceed the amount paid for such services.

Standard of Care
In performing the services provided, Acuren Group Inc. uses the degree, care and skill ordinarily exercised under similar circumstances by others performing such services in the same or similar locality. No other warranty, expressed or implied, is made or intended by Acuren Group Inc.

SIGNATURES
CLIENT REPRESENTATIVE Matthew M... .. DTR #
TECHNICIAN (SIGNATURE): Mike Johnston SIGNATURE
NAME (PRINT): Mike Johnston REPORT REVIEWED BY:
1ST TECHNICIAN 2ND TECHNICIAN
CGSB LEVEL II SNT LEVEL CGSB LEVEL SNT LEVEL
CGSB REG. No 6066 CGSB REG. No